

Claims

1 1. A method for determining whether a test protein
2 is capable of interacting with a retinoid X receptor (RXR)
3 protein, comprising:

4 (a) providing a host cell which contains

5 (i) a reporter gene operably linked to a
6 protein binding site;

7 (ii) a first fusion gene which expresses a
8 first fusion protein, said first fusion protein comprising a
9 retinoid X receptor protein covalently bonded to a binding
10 moiety which is capable of specifically binding to said
11 protein binding site; and

12 (iii) a second fusion gene which expresses a
13 second fusion protein, said second fusion protein comprising
14 said test protein covalently bonded to a gene activating
15 moiety; and

16 (b) determining whether said test protein increases
17 expression of said reporter gene as an indication of its
18 ability to interact with said retinoid X receptor protein.

1 2. The method of claim 1, wherein said method
2 further comprises treating said host cell with a ligand
3 which binds said retinoid X receptor and identifying a
4 ligand-dependent interacting protein by its ability to
5 increase expression of said reporter gene upon treatment of
6 said cell by said ligand.

1 3. The method of claim 1, wherein said method
2 further comprises treating said host cell with a ligand
3 which binds said retinoid X receptor and identifying a
4 ligand-independent interacting protein by its ability to

5 increase expression of said reporter gene both in the
6 presence and in the absence of said ligand treatment.

1 4. The method of claim 1, wherein said method
2 further comprises treating said host cell with a ligand
3 which binds said retinoid X receptor and identifying a
4 ligand-sensitive interacting protein by its ability to
5 increase expression of said reporter gene in the absence but
6 not in the presence of said ligand treatment.

1 5. The method of claim 1, wherein said gene
2 activating moiety is the gene activating moiety of B42.

1 6. The method of claim 2, wherein said ligand is 9-
2 cis-RA.

1 7. A substantially pure RXR-interacting protein.

1 8. The protein of claim 7, comprising an amino acid
2 sequence substantially identical to the amino acid sequence
3 of RIP14-1 shown in Figure 4 (SEQ ID NO: 1).

1 9. The protein of claim 7, comprising an amino acid
2 sequence substantially identical to the amino acid sequence
3 of RIP14-2 shown in Figure 4 (SEQ ID NO: 2).

1 10. The protein of claim 7, comprising an amino
2 acid sequence substantially identical to the amino acid
3 sequence of RIP15 shown in Figure 5 (SEQ ID NO: 3).

1 11. The protein of claim 7, comprising an amino
2 acid sequence substantially identical to the amino acid
3 sequence of RIP110 shown in Figure 10 (SEQ ID NO: 4).

1 12. The protein of claim 7, comprising an amino
2 acid sequence substantially identical to the amino acid
3 sequence of RIP13 shown in Figure 11 (SEQ ID NO: 5).

1 13. The protein of claim 7, wherein said
2 polypeptide is derived from a mammal.

1 14. The protein of claim 13, wherein said mammal is
2 a human.

1 15. The protein of claim 13, wherein said
2 polypeptide binds a β -RARE site in the presence of RXR.

1 16. The protein of claim 13, wherein said
2 polypeptide binds an ECRE site in the presence of RXR.

1 17. Purified DNA comprising a sequence encoding a
2 protein of claim 7.

1 18. The purified DNA of claim 17, wherein said DNA
2 encodes a human RXR-interacting protein.

1 19. The DNA of claim 17, comprising a DNA sequence
2 substantially identical to the DNA sequence of RIP14-1 shown
3 in Figure 4 (SEQ ID NO: 6).

1 20. The DNA of claim 17, comprising a DNA sequence
2 substantially identical to the DNA sequence of RIP14-2 shown
3 in Figure 4 (SEQ ID NO: 14).

1 21. The DNA of claim 17, comprising a DNA sequence
2 substantially identical to the DNA sequence of RIP15 shown
3 in Figure 5 (SEQ ID NO: 7).

1 22. The DNA of claim 17, comprising a DNA sequence
2 substantially identical to the DNA sequence of RIP110 shown
3 in Figure 10 (SEQ ID NO: 8).

1 23. The DNA of claim 17, comprising a DNA sequence
2 substantially identical to the DNA sequence of RIP13 shown
3 in Figure 11 (SEQ ID NO: 9).

1 24. A vector comprising the purified DNA of claim
2 17.

1 25. A cell containing the purified DNA of claim 17.

1 26. A method of producing a recombinant RXR-
2 interacting protein comprising,
3 providing a cell transformed with DNA encoding an
4 RXR-interacting protein positioned for expression in said
5 cell;
6 culturing said transformed cell under conditions for
7 expressing said DNA; and
8 isolating said recombinant RXR-interacting protein.

1 27. RXR-interacting protein produced by expression
2 of the purified DNA of claim 17.